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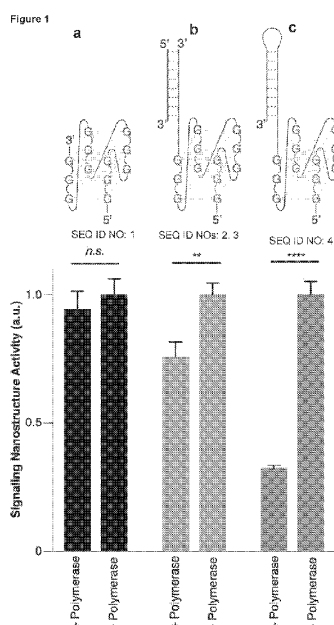
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(54) Title: POLYMERASE-RESPONSIVE CATALYTIC NUCLEIC ACID NANOSTRUCTURES



(57) Abstract: The present invention relates to signalling catalytic nucleic acid nanostructures that are responsive to polymerase activity, methods of their use, devices and kits comprising the same. More specifically, the present invention provides a catalytic signalling nanostructure comprising a DNzyme/RNzyme, such as G-quadruplex hemin, and a polymerase-responsive element. Polymerase elongation of the polymerase-responsive element eliminates catalytic activity of the DNzyme/RNzyme. The catalytic nucleic acid nanostructure can be used alone or paired with a target recognition nanostructure which can transduce molecular signals into polymerase activity, in an integrated circuit.

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